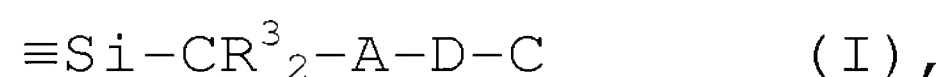


Claims

1. A curable composition **Z** comprising a binder **BM** that carries at least one ethylenically unsaturated group and also particles **P** which possess at least one ethylenically unsaturated group on their surface and contain radicals of the general formula I,



where

R³ is hydrogen or hydrocarbon radical having 1 to 12 carbon atoms, whose carbon chain can be interrupted by nonadjacent oxygen, sulfur or NR⁴ groups,

R⁴ is hydrogen or hydrocarbon radical having 1 to 12 carbon atoms,

A is oxygen, sulfur, =NR⁴ or =N-(D-C),

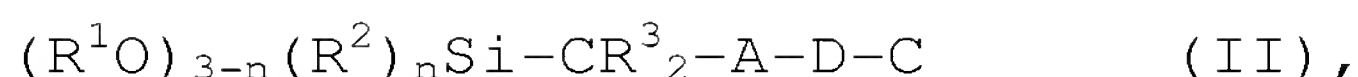
D is carbonyl group, alkylene, cycloalkylene or arylene radical having in each case 1 to 12 carbon atoms, it being possible for the carbon chain to be interrupted by nonadjacent oxygen, sulfur or NR⁴ groups, and

C is an ethylenically unsaturated group.

2. A composition **Z** of claim 1, wherein the particles **P** are preparable by reacting

(a) particles **P1** of a material selected from metal oxides, metal-silicon mixed oxides, silicon dioxide, colloidal silicon dioxide and organopolysiloxane resins and combinations thereof, and possessing functions selected from Me-OH, Si-OH, Me-O-Me, Me-O-Si-, Si-O-Si, Me-OR¹ and Si-OR¹,

(b) with organosilanes **B** of the general formula II,



and/or their hydrolysis and/or condensation products,

(c) and optionally water,

5 where

R¹ is hydrogen or hydrocarbon radical having 1 to 6 carbon atoms, whose carbon chain can be interrupted by nonadjacent oxygen, sulfur or NR⁴ groups,

10 **R²** is hydrocarbon radical having 1 to 12 carbon atoms, whose carbon chain can be interrupted by nonadjacent oxygen, sulfur or NR⁴ groups,

Me is a metal atom and

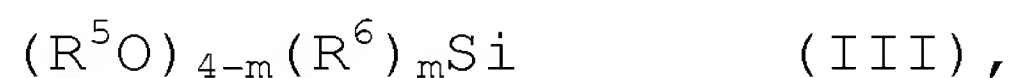
n denotes the values 0, 1 or 2, and

R³, **A**, **D**, and **C** are as defined for claim 1.

15

3. A composition **Z** of claim 1, wherein the particles **P** are preparable by cohydrolyzing organosilanes **B** of the general formula II as per claim 2 with alkoxysilanes **B*** of the general formula III,

20



where

R⁵ has the definitions of **R¹** as per claim 2,

25 **R⁶** is hydrocarbon radical which can be substituted, and

m denotes the values 0, 1, 2 or 3.

4. A composition **Z** of claim 2 and 3, wherein the hydrocarbon radical **R¹** is a methyl, ethyl or phenyl radical.

30

5. A composition **Z** of claim 1 to 4, wherein the groups (-A-D-C) are the radicals OC(O)C(CH₃)=CR³₂, OC(O)CH=CR³₂, NHC(O)C(CH₃)=CR³₂ or NHC(O)CH=CR³₂.

6. A composition **Z** of claim 1 to 5, wherein the ethylenically unsaturated groups in the binder **BM** are capable of free-radical, cationic or anionic polymerization.
- 5
7. A composition **Z** of claim 1 to 6, wherein the ethylenically unsaturated groups in the binder **BM** can be polymerized by actinic radiation or thermal treatment.
- 10 8. A composition **Z** of claim 1 to 7, wherein the ethylenically unsaturated groups in the binder **BM** are selected from vinyl groups, methacrylate groups, acrylate groups and acrylamide groups.
- 15 9. A composition **Z** of claim 1 to 8, wherein the particles **P1** possess an average diameter of less than 1000 nm, the particle size being determined by transmission electron microscopy.
- 20 10. The use of a composition **Z** of claim 1 to 9 for coating substrates.